

An Overview of the Water Treatment Additive Approval Process for NPDES Permitted Facilities

Kay Edly

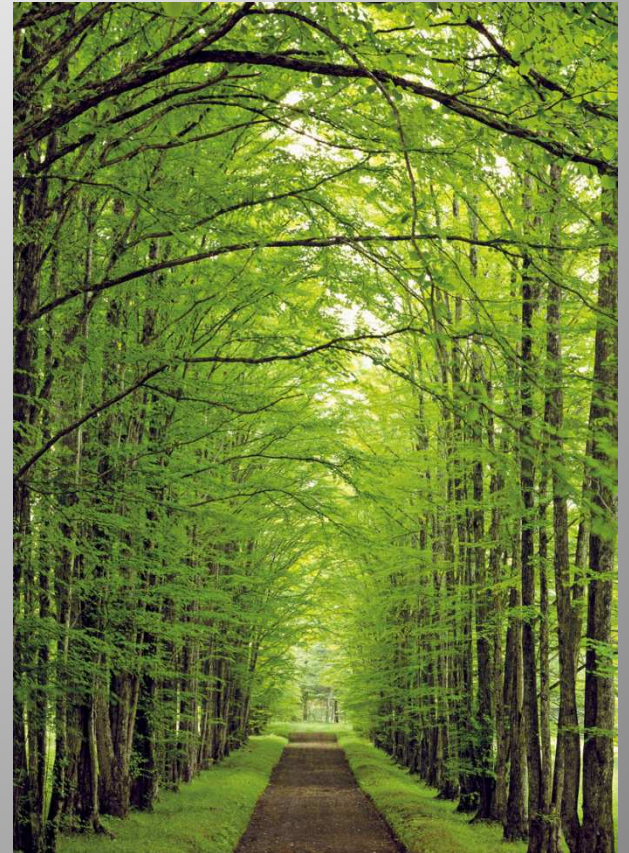
MDEQ – Water Resources Division –
Permits Section

Nov. 19, 2014



Presentation Overview

- What is a Water Treatment Additive?
- When is a WTA Approval Not Needed?
- The WTA Approval Process
- Information Required for WTA Request
- What do we do with this Information?
- The WTA Approval
- Conditional Approvals
- Common Reasons Why Requests are Not Approved
- If WTA Request is Not Approved
- Examples
- Select WTAs
- Summary
- Questions ????
- Our Contact Information



What is a Water Treatment Additive (WTA)?

- WTAs include any material that is added to water used at the facility or to wastewater generated by the facility to condition or treat the water.
- Examples of WTAs include:
 - scale and corrosion inhibitors
 - pesticides (fungicides, biocides, herbicides)
 - antifoamers and defoamers
 - boiler additives (oxygen scavengers, etc)
 - flocculants and coagulants
- Discharged from a NPDES permitted facility except: Notice of Coverages (NOCs) under NPDES Storm Water Discharges from Construction Activities



When is a WTA Approval Not Needed?

Rule 97 Certificate of Approval

- All projects involving the application of materials to **waters of the state** for water resource management purposes
- Examples:
 - treatment of lakes using bacterial augmentation products
 - tracer dye studies for mixing zone mapping, time of passage studies, discharge studies (illicit discharge identification and elimination activities)
 - application of chemicals under Soil Erosion and Sedimentation Control (SESC) permits and NOCs under NPDES Storm Water Discharges from Construction Activities

When is a WTA Approval Not Needed?

Aquatic Nuisance Control Permit

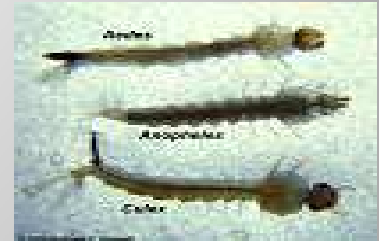
- With a few exceptions, the control of aquatic nuisance species in waters of the state using any product
- Examples: treatment of ponds and lakes using herbicides and algaecides



When is a WTA Approval Not Needed?

NPDES Pesticide General Permit

- Pesticides applied by permittees who perform significant pesticide applications outside NPDES permitted facilities
- example: State and Federal agencies, mosquito and weed control districts, etc
- Permit Categories:
 - Mosquito and other flying insect pest control
 - Forest Canopy Pest Control
 - Aquatic Nuisance Plant and Algae Control
 - Aquatic Nuisance Animal control and Fish Reclamation



When is a WTA Approval Not Needed?

Rule 97 Contact:

William Dimond

517-284-5528

dimondw@michigan.gov

Aquatic Nuisance Control Contact:

deq-wrd-anc@michigan.gov

517-284-5593

www.michigan.gov/anc

NPDES Pesticide General Permit Contact:

Rachel Matthews

517-331-5227

matthewsr@michigan.gov



The WTA Approval Process

- A WTA request must be submitted.
- A WTA approval is required prior to using and discharging a WTA.
- Response time is approximately 6 – 8 weeks if request is complete.
- Request can be submitted at any time.



Information Required to be Included in a WTA Request

1. Safety Data Sheet (SDS), formerly Material Safety Data Sheet (MSDS), and product label (if the additive is a pesticide).
2. The discharge concentration with supporting calculations.
 - needs to be a number
 - units in mass per unit volume (ex. ug/L, mg/L, ppm, etc)
3. The discharge frequency
 - number of hours per day, week, etc
 - acute = short term discharge
 - chronic = long term discharge



Continued on Next Slide...

Information Required to be Included in a WTA Request

4. The outfall the water treatment additive is to be discharged from.
5. The type of removal treatment, if any.
6. The water treatment additive function.
examples: biocide, flocculant, boiler additive, etc.

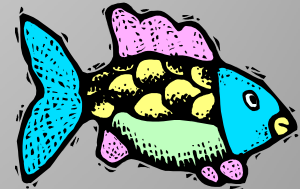
Continued on Next Slide...



Information Required to be Included in a WTA Request

7. and 8. At a minimum, aquatic toxicity data for the following **North American freshwater animals:**

- A **48-hour** LC50 or EC50 for a **planktonic crustacean** (either ***Ceriodaphnia*** sp., ***Daphnia*** sp., or ***Simocephalus*** sp.)
- One other species, Examples include: **96-hour LC50 for a rainbow trout, bluegill, or fathead minnow**



What Do We Do With This Information?

- Use aquatic toxicity data to generate product aquatic life values (ALVs) [final acute value (FAV) and final chronic value (FCV)]
- In some cases, more aquatic toxicity data may result in less restrictive ALVs
- Use product FAV and FCV to calculate acute and chronic allowable levels
- acute allowable level = FAV
chronic allowable level = FCV + dilution
- Compare proposed discharge concentration to allowable levels
 - Approve discharge if proposed concentration within allowable levels
 - Do not approve discharge if proposed concentration exceeds allowable levels

The Water Treatment Additive Approval

WTA approvals are **facility specific** and depend on:

- receiving water body (flow, etc)
- facility's authorized flow
- toxicity of the product
- proposed discharge concentration
- frequency of discharge



Conditional Approvals

The discharge of the WTA may be approved with conditions such as:

- Chemical Specific Monitoring
 - Examples: pH, Total Residual Chlorine, Total Phosphorus
- Whole Effluent Toxicity (WET) Monitoring
 - Potential toxicological effects of a **single WTA**
 - Potential for synergistic and/or additive toxicological effects of **multiple WTAs**

Common Reasons Why WTA Requests are Not Approved

- Proposed discharge concentration exceeds allowable levels
- Aquatic toxicity data not provided
- Aquatic toxicity data does not meet the minimum requirements
- Discharge concentration not provided



If WTA Request is Not Approved

1. Request can be revised and resubmitted for review:
 - Decrease discharge concentration
 - Use less product
 - Was loss, removal, degradation, half-life of product taken into account?
 - Conduct more aquatic toxicity tests on product
2. Submit another request to use another product
Example: look for less toxic products



Example A

Same: WTA, product ALVs, receiving water body flows, authorized flow, allowable levels
Different: discharge concentration

	Facility A	Facility B
Discharge Concentration (mg/L)	2	200
Acute Allowable Level (mg/L)	111	111
Chronic Allowable Level (mg/L)	16	16
Response	Approve	Deny

Example B

Same: WTA, product ALVs, discharge concentration, authorized flow
Different: receiving water flows, chronic allowable level

	Facility A	Facility B
Authorized Flow (MGD)	10	10
Receiving Water Flow (cfs)	100	0
Discharge Concentration (mg/L)	10	10
Acute Allowable Level (mg/L)	111	111
Chronic Allowable Level (mg/L)	16	6
Response	Approve	Deny

Example C

Same: WTA, product ALVs, discharge concentration, receiving water flow
Different: authorized flow, chronic allowable level

	Facility A	Facility B
Authorized Flow (MGD)	10	50
Receiving Water Flow (cfs)	700	700
Discharge Concentration (mg/L)	40	40
Acute Allowable Level (mg/L)	111	111
Chronic Allowable Level (mg/L)	75	20
Response	Approve	Deny

Example D

Same: WTA, discharge concentration, receiving water flow, authorized flow

Different: number of aquatic toxicity tests used to generate product ALVs, product ALVs, allowable levels

	Facility A	Facility B
Authorized Flow (MGD)	10	10
Receiving Water Flow (cfs)	700	700
Discharge Concentration (mg/L)	1,200	1,200
Number of Tests	3	7
Product FAV	1,100	2,100
Product FCV	61	110
Acute Allowable Level (mg/L)	1,100	2,100
Chronic Allowable Level (mg/L)	751	1,354
Response	Deny	Approve

For More Information on Calculating Allowable Levels

- Refer to Rule 57 of the Part 4 Water Quality Standards
- Located at: michigan.gov/deqnpdes
- Then go to Laws and Rules and click on Applicable Rules and Regulations

Select Water Treatment Additives

- Developed to streamline the WTA approval process
- Requests are submitted via the internet and approvals are automatic
- www.michigan.gov/deqnpdes, under Water Treatment Additives click on Select Water Treatment Additives
- Commonly used water treatment products
- Most addressed with a limit in facility's NPDES permit
- Examples: sodium hypochlorite, ferric chloride, hydrochloric acid

Select WTA List

Constituent	Corresponding NPDES Limited Parameter
Calcium hypochlorite	total residual chlorine (TRC) and pH
Sodium hypochlorite	TRC and pH
Chlorine gas	TRC and pH
Sodium thiosulfate	TRC and pH
Sodium sulfite	TRC and pH
Sodium bisulfite	TRC and pH
Sodium metabisulfite	TRC and pH
Ferric chloride	pH
Aluminum sulfate (alum)	pH
Hydrochloric acid (muriatic acid, hydrogen chloride)	pH
Phosphoric acid	Phosphorus and pH
Sodium hydroxide	pH
Sulfuric acid	pH
Sodium bisulfite	pH and dissolved oxygen (DO)

MENU

DEQ


Contacts

Permits

Online Services

Programs


Locations



MI.gov

DEQ

Department of Environmental Quality



Go

DEQ > WATER > SURFACE WATER > NPDES PERMITS

Select Water Treatment Additives Discharge Application Instructions and Form

Contact: DEQ-WRQ-SelectWTA@michigan.gov

Select Water Treatment Additives (WTAs) are those commonly used chemical products that are added as conditioners to improve the water quality for use in a system or process, condition and treat the water to make it suitable for discharge, are considered to not adversely affect aquatic life, are a single chemical (i.e., not a mixture of chemicals), and can be regulated through a facility's National Pollutant Discharge Elimination System (NPDES) permit with a chemical specific water quality-based effluent limit (WQBEL), using a parameter that mitigates the WTA toxicity (i.e., pH limits that mitigate a pH adjusting WTA).

The following chemicals are considered to be [Select WTAs](#) and are commonly used disinfectants and dechlorinating agents, flocculants, pH adjusters, water softeners, and oxygen scavengers.

The process to receive approval to use and subsequently discharge Select WTAs to a surface water of the state from a NPDES permitted outfall includes the following:

1. The receipt of a complete Select WTAs form, below. Fill in the form, below, and click the submit button at the end of the form.

2. Upon submittal of your request, you will receive an automatic response. The automatic response will appear at the top of this web page in red. The automatic response is an approval and is required prior to the discharge of any Select WTA to a surface water of the state from a NPDES permitted outfall. If we require any additional information, you will be contacted.

3. Only those Select WTAs included on the Select Water Treatment Additives List are authorized under this process. The process to receive approval to discharge any WTA not included on the Select Water Treatment Additives List must follow the process outlined under [Water Treatment Additive Discharge Application Instructions \(Non-Select WTAs\)](#).

4. The facility must already possess a NPDES permit, and the outfall from which the Select WTA will be discharged must already be permitted under the NPDES permit.

5. The corresponding NPDES limit for the Select WTA must already be included in the NPDES permit for the outfall from which the WTA will be discharged. Corresponding NPDES limits are included on the [Select Water Treatment Additives List](#).

6. Required sampling to fulfill NPDES permit requirements must be conducted on effluent discharged from the outfall during a representative time period of Select WTA usage and discharge.

Select WTAs Form

The outfall from which the Select WTA(s) will be discharged from must have the corresponding NPDES limit per the Select Water Treatment Additives List to be authorized under this process.

* Mandatory information

Facility Information

*Facility Name

*NPDES Permit Number/Certificate Of Coverage (COC) Number

*Facility Contact (First And Last Name)

*Facility Contact Email

*Phone Number

*Address

*City

*Zip Code

*County

Water Treatment Additive Discharge Information

*Water Treatment Additive (WTA) Name

*Chemical Constituent(s) of the Select WTA

*Outfall(s) WTA Will Be Discharged From

*Corresponding NPDES Limit for the Select WTA

*Duration of Discharge (Days Per Week/Hours Per Day)

*Maximum Dosage Concentration

*WTA Concentration in the Final Discharge

*Type of Removal Treatment (if any) the WTA Receives Prior to Discharge

By clicking the Submit button, I certify that I am authorized to submit this application and the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

EQP9212

* Spam Block: [click here](#) Add **seven** plus **four** and type the answer here

Submit

Reset

HEALTHY MICHIGAN PLAN

DEQ SCORECARD

OPEN MICHIGAN

Related Content

Non-Select Water Treatment Additives Discharge Application Instructions

Michigan.gov Home

DEQ

Online Services

Permits

Programs

Site Map

Contacts

Office of Regulatory Reinvention

Spending & Accountability

State Web Sites

Policies

Michigan News

Michigan.gov Survey

Copyright © 2014 State of Michigan

Summary

- WTA request must include all of the required information
- WTA approval is required prior to using and discharging a WTA
- Approvals are facility specific
- The approval may be conditional
- If not approved, the request can be revised and resubmitted
- Select WTAs

Questions



Contact Information

Kay Edly

517-284-5586

edlyk@michigan.gov

Christine Alexander

517-243-4670

alexanderc2@michigan.gov

www.michigan.gov/deqnpdes

